CSE Moderate Hazard Atmosphere

Catch Basin Repair

Sample Safe Work Procedure

**CATCH BASIN REPAIR - SAFE WORK PROCEDURE**

# PURPOSE

The purpose of this procedure is to ensure the safety of employees when repairing Catch Basins.

# SCOPE

This procedure covers all Sample City worksites and properties that have Catch Basins.

# APPLICABILITY

These procedures apply to all Sample City employees who repair Catch Basins.

# PREREQUISITES

* Confined Space Entry & Monitor Certification
* You must be trained to do this work, familiar with this safe work procedure and correlating risk assessment

# REFERENCE SOURCES:

* Sample City Safety Management System- Safety 8
* WorkSafe BC Regulations Part 9- Confined Space
* Risk Assessment- CSE Moderate Hazard Atmosphere Catch Basins Repair
* Sample City CSE Moderate Hazard Atmosphere- Open Channel Sewers- SWP
* Sample City Alternate Measures- WorkSafe BC Acceptance: AR201700089 (Valid: Nov 7, 2022)

**PPE REQUIRED:**

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| * Hearing protection
 | * Waterproof steel-toed boots
 | * High visibility apparel- CSE Monitor
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| * Hard Hat
 | * Full Face Respirator-Acid Gas/Organic Vapour Cartridges w/ HEPA Filters
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| * Gloves (Rubber or heavy nitrile)
 | * Half Face Respirator (with tight fitting goggles-NO SAFETY GLASSES) equipped with Acid Gas/Organic Vapour Cartridges w/ HEPA Filters
 | * Gas Detectors (02- 20.2%

to 20.8%) (LEL- 4%) (H2S- 5ppm) (CO-25 ppm) |
| * Protective clothing (Washable coveralls or chest waders)
 | * Rescue Harness- affixed to tripod/Davitt arm
 | * Ventilation (1100 cfm minimum positioned as close to worker as

practicable) |

**TOOLS AND EQUIPMENT REQUIRED:**

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| * Service truck (hand tools, power tools, materials)
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| * Solids pump and hoses
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| * Vacuum Truck (potentially)
 |
| * Traffic control devices
 |
| **Effective Date** | **Revised Date** | **Authorized By** | **Approved By** |
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| **PRE – Work Procedure** |
| **Responsibility** | **Activity** |
| **Supervisor** | Ensure workers are fit-tested annually. Workers must be clean shaven prior to entering into space to allow for a proper seal of their full-face air purifying respirator. (Half mask with tight fitting goggles- No safety glasses are acceptable) |
| **Supervisor** | * Check weather report for possibility of precipitation or snowmelt/runoff. Work inside catch basin can only be performed when there is no running water to catch basin to be repaired.
 |
| **CSE Entrant & Supervisor** | * Prior to heading out to the job-site, ensure the 4-gas monitors are bump tested daily and are calibrated according to manufacturer’s specifications.
* Clear peaks and zero monitor in fresh air prior to use.
* Alarm settings on the gas monitors are as follows: Carbon Monoxide (CO) – 25 ppm

Lower Explosive Limit (LEL) – 5% Hydrogen Sulphide (H2S)- 5 ppm Oxygen Sensors (02) 20.2% to 20.8%**Above set points are based on Terms of Acceptance- AR21700089 (Valid until: November 7, 2022)** |
| **CSE Entrant & Supervisor and/or TCP** | * Secure work area as per Traffic Management Plan (if required). Ensure high visibility apparel is worn when near roadway.
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| **CSE Entrant & Supervisor** | * Ensure vehicles are positioned away from ventilation air intake, turn off engine if possible.
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| **CSE Entrant & Supervisor** | * Use Ground Fault Circuit Interrupter (GFCI) with any electrically powered equipment. Check all power cords and equipment for damage prior to use.
 |
| **CSE Entrant & Supervisor** | * Conduct a tailgate meeting or Field Level Risk Assessment (FLRA) with all involved workers prior to entering the space. The following must be reviewed but is not limited to:
	1. Procedure and risk assessment
	2. The scope of work and staging of tasks to be performed on-site and in the space.
	3. Communication- ensure verbal and visual cues are understood by all.
	4. Testing and verification- ensure that all PPE and equipment is in good working order
	5. Work area surroundings- scan area for any changes in conditions or obstructions in area
	6. Discuss the rescue plan
	7. Ensure all rescue equipment is set-up and ready-to-go
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| **CSE Entrant & Supervisor** | * Isolation and lockout of a municipal sewer system is not possible, as such, follow the requirements of the approved Terms of Acceptance from WorkSafe BC. The flow depth must be less 0.5 m or lower. In the extremely rare occasion that the observed flow exceeds 0.5 meter in depth, do not enter. Report to supervisor and perform task at a different time (lower flow)
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| **CSE Entrant & Supervisor** | * Start to fill out the confined space entry permit and ensure all documents are on- site (procedure, risk assessment, tailgate/FLRA)
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| **CSE Entrant & Supervisor** | * Ensure good housekeeping is maintained near the access point and in the space throughout the entry.
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| **CSE Entrant & Supervisor** | * Have educator/Jet vacuum truck vacuum catch basin water, sediment and debris and wash down space to ensure clean and clear of hazards
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| **CSE Entrant & Supervisor** | * Confirm ventilation fan specification/output (review label) matches the requirement in the ***Tools and Equipment Required*** section
* Set-up the ventilation system, positioning the fan intake upwind and away from any vehicle or equipment exhausts or traffic.
* Position the end of the duct close to the bottom of the space for pre-ventilation and as close to the worker as possible during entry.
* Only push air into the space, ***DO NOT draw air out of the space***
* Ensure the space is ventilated for 20 minutes prior to person entering space
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| **CSE Entrant & Supervisor** | * Set-up the tripod (Davit Arm), mechanical winch and Type 3 SRL over the access point (catch basin)
* When entering into a space without fixed ladder access, the entrant must wear a full body harness with dorsal D-ring during entry and remain connected to the lifeline/fall protection system during entire entry.
* When entries must occur in catch basin, the Entrants must remain connected to the lifeline/fall protection system during entire entry.
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| **CSE Entrant & Supervisor** | * Pre-entry test the atmosphere to bottom of space (all areas of space)-use built in pump with tubing. Allow for 2 seconds per foot of tubing to allow for the sample to travel from the far end to the monitor’s sensors.
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| **CSE Entrant & Supervisor** | * Visually inspect concrete for signs of deterioration prior to entry. If significant structural deterioration is observed, do not enter. Report deficiencies to supervisor.
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| **Entrant** | * A fit-tested full face air-purifying respirator equipped with organic vapour/acid gas/HEPA filtered cartridge or Half Face Respirator (with tight fitting goggles-NO SAFETY GLASSES) equipped with Acid Gas/Organic Vapour Cartridges w/ HEPA Filters as the minimum required respiratory protection for this entry. If entrant travels outside the line of sight, horizontally upstream or downstream in the pipe, ventilation must be re-positioned to ensure continuous supply of air is directed at the entrant.
* Conduct a positive and negative seal/fit check before entry. Ensure all PPE as per the PPE Required section is in good repair and is worn prior to entry.
 |
| **CSE Supervisor** | * A CSE Supervisor must be stationed at the entrance of the space. They are responsible for the following:
	+ Continuously monitoring the atmosphere of the space the entire time the entrant is in the space.
	+ Record readings on CSE permit every 20 minutes (as a minimum, you could record the readings in shorter time intervals but no longer than 20 minutes)
	+ Visually observe and check on the wellbeing of the worker in the space every 20 minutes (as a minimum, you can check on the entrant in shorter time intervals but no longer than 20 minutes)
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| **Safe Work Procedure** |
| **Responsibility** | **Activity** |
| **Entrant** | Once space is deemed safe, Lower entrant using SRL winch into catch basin |
| **CSE Supervisor** | CSE Supervisor will hand tools through opening to entrant |
| **Entrant** | Entrant will start the repair (Chip away at old concrete, grout for repairs, etc.) |
| **Entrant/ CSE Supervisor** | Once repaired the entrant will hand tools back up to the CSE Supervisor |
| **Entrant** | Once tools and excess materials are out of space, the entrant will be hoisted out of catch basin by CSE supervisor using SRL winch |

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| **POST – House keeping** |
| **Responsibility** | **Activity** |
| **Entrant/ CSE Supervisor** | Collect, clean, and store all tools, equipment, materials appropriately and conduct a final sweep of site to ensure safe, secure and clean. Update supervisor on completion of task. |

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| **Written By:** |  | **Title:** |  | **Dept.** |  |
| **Revised By:** |  | **Title:** |  | **Dept.** |  |

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